2001

IMPACT OF SEASON AND HEAT STRESS ON SOMATIC CELL COUNTS

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ABSTRACT OF THESIS

IMPACT OF SEASON AND HEAT STRESS ON SOMATIC CELL COUNTS

Infection data were obtained monthly from June, 1999 to September, 2000 at the University of Kentucky dairy. Quarter foremilk samples were collected for bacteriological determination and somatic cell counts (SCC). The Livestock Stress Index (LSI) estimated heat stress and is calculated by combination of temperature and humidity. For uninfected quarters the geometric mean SCC was 29,000 cells/ml. For infected quarters the geometric mean SCC was 213,000 cells/ml. Coagulase-negative staphylococci (CNS) infections comprised 61 percent of the total infected quarters with a geometric mean SCC of 155,000 cells/ml. *Staphylococcus aureus* infected quarters had a geometric mean SCC of 680,000 cells/ml. There were no significant correlations between log SCC and LSI when looking at the total sample period. However, evaluating October, 1999 through September, 2000, significant correlations were found for LSI and log SCC of uninfected quarters ($P < 0.05$) and` infected quarters ($P < 0.0001$). All correlation coefficients were less than 0.12. The results suggest no marked changes in SCC were observed in uninfected quarters during hot summer weather. Hot summer weather may have a minor impact on SCC in infected quarters, but the effect is variable. Thus, infection status of the mammary gland, not heat stress, is the major factor determining SCC.

Keywords: Livestock Stress Index, Mastitis, Somatic Cell Count, Bovine

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Director of Thesis

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THESIS

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The Graduate School
University of Kentucky
2001

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THESIS

A thesis submitted in partial fulfillment
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By

Brent Allen Broaddus

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Director: Dr. Robert J. Harmon, Professor of Animal Science

Lexington, Kentucky

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DEDICATION

I would like to dedicate this thesis to three individuals that have had a profound impact on my life and on my success thus far and for my success yet to come. Through their examples and faith they have shown to all that have known them that angels walk among us.

Benjamin H. McGuire

Hila E. Whiting

Richard L. Whiting

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